## Table of Contents

### Artificial Intelligence I

Speaker Model and Decision Threshold Updating in Speaker Verification .................................................... 1  
*M. Mehdi Homayounpour*

Application of Constraint Hierarchy to Timetabling Problems ........... 11  
*Tatyana Yakhno, Evren Tekin*

An Intelligent System for Therapy Control in a Distributed Organization ...................................................... 19  
*José Joaquín Cañadas, Isabel María del Águila, Alfonso Bosch,*  
*Samuel Túnez*

### Data Mining

Discovering Local Patterns from Multiple Temporal Sequences ................................................................. 27  
*Xiaoming Jin, Yuchang Lu, Chunyi Shi*

The Geometric Framework for Exact and Similarity Querying XML Data ............................................................... 35  
*Míchal Krátký, Jaroslav Pokorný, Tomáš Skopal, Václav Snášel*

A Mobile System for Extracting and Visualizing Protein-Protein Interactions .................................................... 47  
*Kyungsook Han, Hyoungguen Kim*

Discovering Temporal Relation Rules Mining from Interval Data ........ 57  
*Jun Wook Lee, Yong Joon Lee, Hee Kyu Kim, Bu Hun Hwang,*  
*Keun Ho Ryu*

### Multimedia I

An Abstract Image Representation Based on Edge Pixel Neighborhood Information (EPNI) ....................... 67  
*Abdolah Chalechale, Alfred Mertins*

Motion Estimation Based on Temporal Correlations ......................... 75  
*H.S. Yoon, G.S. Lee, S.H. Kim, J.Y. Chang*

A New Boundary Matching Algorithm Based on Edge Detection ........ 84  
*NamRye Son, YoJin Yang, GuCeSang Lee, SangJu Park*
Lookmark: A 2.5D Web Information Visualization System............. 93
Christian Breiteneder, Horst Eidenberger, Geert Fiedler,
Markus Raab

Artificial Intelligence II
Different Local Search Algorithms in STAGE for Solving Bin
Packing Problem ................................................... 102
Saeed Bagheri Shouraki, Gholamreza Haffari
A Prototype for Functionality Based Network Management System .... 110
V. Neelanarayanan, N. Satyanarayana, N. Subramanian, E. Usha Rani
Coaching a Soccer Simulation Team in RoboCup Environment ......... 117
J. Habibi, E. Chiniforooshan, A. HeydarNoori, M. Mirzazadeh,
M.A. Safari, H.R. Younesy

Security I
Improving Information Retrieval System Security via an Optimal
Maximal Coding Scheme ............................................. 127
Dongyang Long
A New Scheme Based on Semiconductor Lasers with Phase-Conjugate
Feedback for Cryptographic Communications ........................ 135
A. Iglesias
Parallel Algorithm and Architecture for Public-Key Cryptosystem .... 145
Hyun-Sung Kim, Kee-Young Yoo
Specification and Verification of Security Policies in Firewalls .......... 154
Rasool Jalili, Mohsen Rezvani

Multimedia II
Image Segmentation Based on Shape Space Modeling ............... 164
Daehee Kim, Yo-Sung Ho
HERMES: File System Support for Multimedia Streaming in
Information Home Appliance ....................................... 172
Youjip Won, Jinyoun Park, Sangback Ma
Motion Vector Recovery for Error Concealment Based on Macroblock
Distortion Modeling ................................................ 180
Jae-Won Suh, Yo-Sung Ho
A Memory Copy Reduction Scheme for Networked Multimedia Service
in Linux Kernel .......................................................... 188
JeongWon Kim, YoungUhg Lho, YoungJu Kim, KwangBaek Kim,
SeungWon Lee
Neural Network

Hidden Markov Model and Neural Network Hybrid

Dongsuk Yook

Neural Network Based Algorithms for IP Lookup and Packet Classification

Mehran Mahramian, Nasser Yazdani, Karim Faez, Hassan Taheri

Non-linear Prediction of Speech Signal Using Artificial Neural Nets

K. Ashouri, M. Amini, M.H. Savoji

Security II

Web Document Access Control Using Two-Layered Storage Structures with RBAC Server

Won Bo Shim, Seog Park

Development of UML Descriptions with USE

Martin Gogolla, Mark Richters

FPGA Implementation of Digital Chaotic Cryptography

Dewi Utami, Hadi Suwastio, Bambang Sumadjudin

Multimedia III

Stereo for Recovering Sharp Object Boundaries

Jeonghee Jeon, Choongwon Kim, Yo-Sung Ho

Priority Vantage Points Structures for Similarity Queries in Metric Spaces

Cengiz Celik

A High Performance Image Coding Using Uniform Morphological Sampling, Residues Classifying, and Vector Quantization

Saeid Saryazdi, Mostafa Jafari

A Genetic Algorithm for Steiner Tree Optimization with Multiple Constraints Using Prüfer Number

A.T. Haghighat, K. Faez, M. Dehghan, A. Mowlaei, Y. Ghahremani

Data and Knowledge Engineering I

A New Technique for Participation of Non-CORBA Independent Persistent Objects in OTS Transactions

Mohsen Sharifi, S.F. Noorani, F. Orooji

Compositional Modelling of Workflow Processes

Khodakaram Salimifard, Mike B. Wright
EDMIS: Metadata Interchange System for OLAP ...................... 297
   In-Gi Lee, Minsoo Lee, Hwan-Seung Yong

An Efficient Method for Controlling Access in Object-Oriented Databases .................................................... 306
   Woochun Jun, Le Gruenwald

XML I

Extracting Information from XML Documents by Reverse Generating a DTD .............................................. 314
   Jong-Seok Jung, Dong-Ik Oh, Yong-Hae Kong, Jong-Keun Ahn

Mapping XML-Schema to Relational Schema .......................... 322
   Sun Hongwei, Zhang Shusheng, Zhou Jingtao, Wang Jing

Flexible Modification of Relational Schema by X2RMap in Storing XML into Relations .................................. 330
   Jaeohon Kim, Seog Park

B2B Integration – Aligning ebXML and Ontology Approaches ........ 339
   Birgit Hofreiter, Christian Huemer

Mobile Communication I

An Agent Based Service Discovery Architecture for Mobile Environments ...................................................... 350
   Zhou Wang, Jochen Seitz

Location Management Using Multicasting HLR in Mobile Networks ....... 358
   Dong Chun Lee

Packet Error Probability of Multi-carrier CDMA System in Fast/Slow Correlated Fading Plus Interference Channel .......... 366
   Jae-Sung Roh, Chang-Heon Oh, Heau-Jo Kang, Sung-Joon Cho

Computer Graphics

A Distributed Low-Cost Dynamic Multicast Routing Algorithm with Delay Constraints ........................................ 377
   Min-Woo Shin, Nak-Keun Joo, Hyeong-Seok Lim

A New Bandwidth Reduction Method for Distributed Rendering Systems ..................................................... 387
   Won-Jong Lee, Hyung-Rae Kim, Woo-Chan Park, Jung-Woo Kim,
   Tack-Don Han, Sung-Bong Yang

Neural Networks Based Mesh Generation Method in 2-D ............... 395
   Cinar Ahmet, Arslan Ahmet
Table of Contents

Image Denoising Using Hidden Markov Models
Leila Ghabeli, Hamidreza Amindavar

Data and Knowledge Engineering II
Anaphoric Definitions in Description Logic
Maarten Marx, Mehdi Dastani

Storage and Querying of High Dimensional Sparsely Populated Data in Compressed Representation
Abu Seyed M. Latiful Hoque

The GlobData Fault-Tolerant Replicated Distributed Object Database
Luís Rodrigues, Hugo Miranda, Ricardo Almeida, João Martins, Pedro Vicente

XML II
A Levelized Schema Extraction for XML Document Using User-Defined Graphs
Sungrim Kim, Yong-ik Yoon

Extracting, Interconnecting, and Accessing Heterogeneous Data Sources: An XML Query Based Approach
Gilles Nachouki, Mohamed Quafafou

Mobile Communication II
Call Admission Control in Cellular Mobile Networks: A Learning Automata Approach
Hamid Beigy, M.R. Meybodi

An Adaptive Flow Control Scheme for Improving TCP Performance in Wireless Internet
Seung-Joon Seok, Sung-Min Hong, Chul-Hee Kang

An Adaptive TCP Protocol for Lossy Mobile Environment
Choong Seon Hong, Yingxia Niu, Jae-Jo Lee

Design and Implementation of Application-Level Multicasting Services over ATM Networks
Sung-Yong Park, Jihoon Yang, Yoonhee Kim

Digital Libraries and Natural Language Issues
Bon: The Persian Stemmer
Masoud Tashakori, Mohammadreza Meybodi, Farhad Oroumchian
Current and Future Features of Digital Journals ..................... 495
Harald Krottmaier

Solving Language Problems in a Multilingual Digital Library
Federation ........................................................ 503
Nieves R. Brisaboa, José R. Parmá, Miguel R. Penabad,
Ángeles S. Places, Francisco J. Rodríguez

Internet and Quality of Service
Performing IP Lookup on Very High Line Speed ....................... 511
Nasser Yazdani, Nazila Salimi

A Study of Marking Aggregated TCP and UDP Flows
Using Generalized Marking Scheme .................................. 519
Seung-Joon Seok, Sung-Min Hong, Chul-Hee Kang

Information Society
Towards the Global Information Society: The Enactment of a
Regulatory Framework as a Factor of Transparency and Social Cohesion .. 527
Panagiotis S. Anastasiades

E-learning
On the Application of the Semantic Web Concepts to Adaptive
E-learning ................................................................. 536
Juan M. Santos, Luis Anido, Martín Llamas, Judith S. Rodríguez

An Integrated Programming Environment for Teaching the
Object-Oriented Programming Paradigm .............................. 544
Stelios Xinogalos, Maya Satratzemi

The Current Legislation Covering E-learning Provisions for the
Visually Impaired in the EU ........................................... 552
Hamid Jahankhani, John A. Lynch, Jonathan Stephenson

Mobile Communication III
Monte Carlo Soft Handoff Modeling .................................. 560
Alexey S. Rodionov, Hyunseung Choo

A QoS Provision Architecture for Mobile IPv6 over MPLS Using HMAT .. 569
ZhaoWei Qu, Choong Seon Hong, Sungyoung Lee

A New Propagation Model for Cellular Mobile Radio Communications
in Urban Environments Including Tree Effects ........................ 580
Reza Arablouei, Ayaz Ghorbani
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile Web Information Systems</td>
<td></td>
</tr>
<tr>
<td>A Secure Mobile Agent System Applying Identity-Based Digital Signature Scheme</td>
<td>588</td>
</tr>
<tr>
<td>Seongyeol Kim, Il yong Chung</td>
<td></td>
</tr>
<tr>
<td>Transmission Time Analysis of WAP over CDMA System Using Turbo Code Scheme</td>
<td>597</td>
</tr>
<tr>
<td>Il-Young Moon, Jae-Sung Roh, Sung-Joon Cho</td>
<td></td>
</tr>
<tr>
<td>On the Use of New Technologies in Health Care</td>
<td>607</td>
</tr>
<tr>
<td>Luis Anido, Fernando Aguado, Olga Folgueiras, Judith S. Rodríguez, Juan M. Santos, Manuel Caeiro</td>
<td></td>
</tr>
<tr>
<td>Wireless Communication Technology I</td>
<td></td>
</tr>
<tr>
<td>Hybrid Queuing Strategy to Reduce Call Blocking in Multimedia Wireless Networks</td>
<td>615</td>
</tr>
<tr>
<td>Dong Chun Lee, Il-Sun Hwang, Robert Young Chul Kim</td>
<td></td>
</tr>
<tr>
<td>A Dynamic Backoff Scheme to Guarantee QoS over IEEE 802.11 Wireless Local Area Networks</td>
<td>624</td>
</tr>
<tr>
<td>Kil-Woong Jang, Sung-Ho Hwang, Ki-Jun Han</td>
<td></td>
</tr>
<tr>
<td>Performance Evaluation of Serial/Parallel Block Coded CDMA System with Complex Spreading in Near/Far Multiple-Access Interference and Multi-path Nakagami Fading Channel</td>
<td>632</td>
</tr>
<tr>
<td>Jae-Sung Roh, Choon-Gil Kim, Sung-Joon Cho</td>
<td></td>
</tr>
<tr>
<td>A Learning Automata Based Dynamic Guard Channel Scheme</td>
<td>643</td>
</tr>
<tr>
<td>Hamid Beigy, M.R. Meybodi</td>
<td></td>
</tr>
<tr>
<td>Web-Based Application</td>
<td></td>
</tr>
<tr>
<td>Dynamic System Simulation on the Web</td>
<td>651</td>
</tr>
<tr>
<td>Khaled Mahbub, M.S.J. Hashmi</td>
<td></td>
</tr>
<tr>
<td>Using Proximity Information for Load Balancing in Geographically Distributed Web Server Systems</td>
<td>659</td>
</tr>
<tr>
<td>Dheeraj Sanghi, Pankaj Jalote, Puneet Agarwal</td>
<td></td>
</tr>
<tr>
<td>Strategic Tool for Assessment of the Supply and Demand Relationship between ASPs and SMEs for Competitive Advantage</td>
<td>667</td>
</tr>
<tr>
<td>Babak Akhgar, Jawed Siddiqi, Mehrdad Naderi</td>
<td></td>
</tr>
<tr>
<td>Intelligent Agents I</td>
<td></td>
</tr>
<tr>
<td>Trust and Commitment in Dynamic Logic</td>
<td>677</td>
</tr>
<tr>
<td>Jan Broersen, Mehdi Dastani, Zhisheng Huang, Leendert van der Torre</td>
<td></td>
</tr>
</tbody>
</table>
Modelling Heterogeneity in Multi Agent Systems
   Stefania Bandini, Sara Manzoni, Carla Simone
   .................................................. 685

Pricing Agents for a Group Buying System
   Yong Kyu Lee, Shin Woo Kim, Min Jung Ko, Sung Eun Park
   .................................................. 693

Evolution of Cooperation in Multiagent Systems
   Brian Mayoh
   .................................................. 701

Real-Time Systems

A Dynamic Window-Based Approximate Shortest Path Re-computation
   Method for Digital Road Map Databases in Mobile Environments
   Jae-Han Kim, Sungwon Jung
   .................................................. 711

Web-Based Process Control Systems: Architectural Patterns, Data
   Models, and Services
   Mykola V. Tkachuk, Heinrich C. Mayr, Dmytro V. Kuklenko,
   Michail D. Godlevsky
   .................................................. 721

A Comparison of Techniques to Estimate Response Time for Data
   Placement
   Shahram Ghandeharizadeh, Shan Gao, Chris Gahagan
   .................................................. 730

Using a Real-Time Web-Based Pattern Recognition System to Search
   for Component Patterns Database
   Sung-Jung Hsiao, Kuo-Chin Fan, Wen-Tsai Sung, Shih-Ching Ou
   .................................................. 739

Wireless Communication Technology II

An Adaptive Call Admission Control to Support Flow Handover in
   Wireless Ad Hoc Networks
   Joo-Hwan Seo, Ki-Jun Han
   .................................................. 747

Design of Optimal LA in Personal Communication Services Network
   Using Simulated Annealing Technique
   Madhabani Maitra, Ranjan Kumar Pradhan, Debasish Saha,
   Amitava Mukherjee
   .................................................. 755

Secure Bluetooth Piconet Using Non-anonymous Group Key
   Dae-Hee Seo, Im-Yeong Lee, Dong-ik Oh, Doo-soon Park
   .................................................. 766

Differentiated Bandwidth Allocation and Power Saving for Wireless
   Personal Area Networks
   Tue-Jin Lee, Yongsuk Kim
   .................................................. 778
## Software Engineering I

Combining Extreme Programming with ISO 9000 .................................. 786  
*Jerzy R. Nawrocki, Michał Jasinski, Bartosz Walter, Adam Wojciechowski*

The Class Cohesion Using the Reference Graph G1 and G2 ..................... 795  
*Wan-Kyoo Choi, Il-Yong Chung Sung-Joo Lee, Hong-Sang Yoon*

Process-Oriented Interactive Simulation of Software Acquisition Projects .................................................. 806  
*Tobias Häberlein, Thomas Gantner*

Automatic Design Patterns Identification of C++ Programs ................. 816  
*Félix Agustín Castro Espinoza, Gustavo Núñez Esquer, Joel Suárez Cansino*

## Intelligent Agents II

Specifying the Merging of Desires into Goals in the Context of Beliefs .................................................. 824  
*Mehdi Dastani, Leendert van der Torre*

The Illegal Copy Protection Using Hidden Agent ............................... 832  
*Deok-Gyu Lee, Im-Yeong Lee, Jong-Keun Ahn, Yong-Hae Kong*

Mobile Agent-Based Misuse Intrusion Detection Rule Propagation Model for Distributed System ........................................... 842  
*Tae-Kyung Kim, Dong-Young Lee, T.M. Chung*

## Algorithm and Computer Theory

*H*-Colorings of Large Degree Graphs ............................................. 850  
*Josep Díaz, Jaroslav Nešetřil, Maria Serna, Dimitrios M. Thilikos*

Hyper-Star Graph: A New Interconnection Network Improving the Network Cost of the Hypercube .......................... 858  
*Hyeong-Ok Lee, Jong-Seok Kim, Eunseuk Oh, Hyeong-Seok Lim*

Sequential Consistency as Lazy Linearizability ............................... 866  
*Michel Raynal*

Embedding Full Ternary Trees into Recursive Circulants ......................... 874  
*Cheol Kim, Jung Choi, Hyeong-Seok Lim*
XXII Table of Contents

Wireless Communication Technology III

A Handoff Priority Scheme for TDMA/FDMA-Based Cellular Networks . . 883
Kil-Woong Jang, Sun-Woo Lee, Ki-Jun Han

On Delay Times in a Bluetooth Piconet: The Impact of Different Scheduling Policies .................................................. 891
Jelena Mišić and Vojislav B. Mišić

Intelligent Paging Strategy in 3G Personal Communication Systems ..................................................... 899
I. Saha Misra, S. Karmakar, M.S. Mahapatra, P.S. Bhattacharjee, D. Saha, A. Mukherjee

Experience from Mobile Application Service Framework in WIP ........... 907
Shinyoung Lim, Youjin Song

An Efficient Approach to Improve TCP Performance over Wireless Networks ............................................................ 916
Satoshi Utsumi, Salahuddin M.S. Zabir, Norio Shiratori

Extended Hexagonal Constellations as a Means of Multicarrier PAPR Reduction .............................................................. 926
Ali Pezeshk, Babak H. Khalaj

Software Engineering II

Adaptive Application-Centric Management in Meta-computing Environments ................................................................. 937
Yoonhee Kim, Sung-Yong Park

The Weakest Failure Detector for Solving Election Problems in Asynchronous Distributed Systems ............................................ 945
Sung-Hoon Park

From Lens to Flow Structure ............................................................ 953
David Fauthoux, Jean-Paul Bahsoun

ADML: A Language for Automatic Generation of Migration Plans ........ 965
Jennifer Pérez, José A. Carsi, Isidro Ramos

Considerations for Using Domain-Specific Modeling in the Analysis Phase of Software Development Process ....................... 975
Kalle Korhonen

Intelligent Agents II

Organizations and Normative Agents ............................................ 982
Mehdi Dastani, Virginia Dignum, Frank Dignum
A Framework for Agent-Based Software Development ................. 990
   Behrouz Homayoun Far

Application of Agent Technologies in Extended Enterprise
Production Planning ........................................................ 998
   V. Marík, M. Pechoucek, J. Vokrůnek, A. Riha

Zamin: An Artificial Ecosystem ............................................. 1008
   Ramin Halavati, Saeed Bagheri Shouraki

Author Index ................................................................. 1017
EurAsia-ICT 2002: Information and Communication Technology
First EurAsian Conference, Shiraz, Iran, October 29-31, 2002, Proceedings
Shafazand, M.H.; Tjoa, M.A. (Eds.)
2002, XXIV, 1028 p., Softcover
ISBN: 978-3-540-00028-0